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# GALAXY'S JIANGSU PLANT ACHIEVES BATTERY GRADE SPECS

## Highlights

- Lithium carbonate product from Jiangsu meets all battery grade specifications
- Plant achieving 99.5% purity required by battery cathode customers
- Samples being sent to long term offtake customers
- Revenue from technical grade product continues
- Revenue flows increasing alongside Jiangsu Plant output.
- Company sees positive operational cash flow achieved in Q1 2013
- Chinese lithium carbonate prices up 17% since same time last year
- 12 months' worth of spodumene feedstock in reserve for Jiangsu Plant

Lithium producer Galaxy Resources Ltd (ASX: GXY) ("Galaxy" or "the Company") advises that lithium carbonate product from its wholly-owned Jiangsu Lithium Carbonate Plant ("Jiangsu" or "Jiangsu Plant") has achieved battery grade quality across all specifications, meeting the Plant's design.

This means that as well as adhering to the 99.5% purity criteria, the production now meets the prescribed tolerances for impurities required by its cathode producing customers. Battery grade lithium carbonate must meet stringent specifications, with allowances for only certain levels of impurities such as calcium, magnesium, iron, sulphate and sodium. *(see Figure 1)* 

### Figure 1: Jiangsu battery grade lithium carbonate results

Sample ID	%	ppm											ppm	
	LC	Na	Са	Mg	Fe	AI	Cu	Mn	Ni	Zn	Pb	Si	CI	SO₄
Sample 1	99.55	79	24	4	8	5	1	1	1	1	1	10	10	790
Sample 2	99.55	117	22	4	6	5	1	1	1	1	1	10	10	556
Battery Grade Specs	≥99.5	<250	<50	<100	<20	<50	<10	<10	<30	<10	<10	<50	<50	<800

Sample material will now be delivered to Galaxy's existing clients under offtake framework agreements (13 major battery cathode producers in China and Mitsubishi Corporation of Japan) for qualification testing and confirmation. In the meantime, the Company continues to sell final product to technical grade customers at strong pricing levels.

Battery grade lithium carbonate commands a significant pricing premium over more common technical and industrial grade material. The achievement of battery grade product is an important milestone in the ramp-up of the Jiangsu Plant and towards the Company's strategy of becoming a dominant player in the lithium-ion battery input market.

Galaxy Managing Director, Iggy Tan, said the Company is very pleased to have achieved the design battery grade specifications so early in the life of the Jiangsu Plant.

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"Achieving product quality design at a complex chemical plant often takes considerable time and the Jiangsu team has worked hard to meet all of the lithium carbonate battery grade specifications so early in the ramp-up cycle.

"Only a few Chinese lithium carbonate plants are currently achieving battery grade specifications for lithium carbonate, notwithstanding the many years of development it took to achieve this quality".

"The Company is extremely pleased with the quality and operational performance of Jiangsu to date. Sample battery grade material is now being prepared for our major cathode offtake customers, with technical grade demand and sales continuing. Revenue flows from Jiangsu will continue to increase as ramp-up in output progresses," said Mr Tan.



Lithium carbonate product in the Jiangsu warehouse

## Jiangsu Plant Performance and Production



Front end kiln operating at 83% of instantaneous design

The calciner (front end of the plant) feed rate is currently operating at 15 tonnes/hour compared with a design instantaneous rate of 18 tonnes/hour, or 83% of instantaneous design capacity. The calcination and sulphation kilns are performing to expectation, with scope to further increase the feed rate over the next few weeks.

The leach section of the Jiangsu Plant is operating according to design, recording strong rates of impurity removal (slag, iron, calcium and magnesium). The slag filtration and washing units appear to have sufficient capacity. The ion-exchange plant has successfully reduced calcium levels in the lithium sulphate mother liquor to meet battery grade specifications.

The purification plant has been fully operational and is successfully producing the low impurity final product required by the battery

industry. The Jiangsu team is working to get improved back end stability and increasing recovery as part of the ramp-up plan.

### Customer Sales Continuing

The Company has been able to successfully sell all lithium carbonate product produced from the Jiangsu Plant to date, with general acceptance of the product by customers. Production and revenue flows from the Jiangsu Plant will continue to increase as the ramp-up phase continues. Lithium carbonate demand remains strong in China, with price increases of around 17% since the same time last year.

The Galaxy marketing and sales team has also established forward sales orders ahead of the production profile, demonstrating further acceptance of product quality.

The Company will continue to focus on production at Jiangsu on the path to full design volume and even higher 'premium' grades of lithium carbonate. The Company's strategy has always been to sell high



Ion exchange units performing well

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grade, high value product rather than addressing the unprocessed or lower grade lithium market for non-battery applications, and meeting battery grade specifications is an important step in realising that strategy.

Increased sales of the final lithium carbonate product will boost revenue flows and the expectation is that positive operational cash flows will be achieved during the first quarter of 2013. The Company's cash position (unaudited) at the end of June 2012 was A\$17.4 million. In addition, Galaxy has undertakings for working capital facilities from several PRC banks to the total of A\$45 million for the Jiangsu ramp-up.





**Purification plant in operation** 

Lithium carbonate precipitation

Production commenced at the A\$100 million Jiangsu Plant in April 2012, with ramp-up expected to take up to 12 months from that date. The Jiangsu Plant's design capacity is 17,000 tonnes per annum of battery grade (99.5%) lithium carbonate.

The Jiangsu Plant is the first fully-automated lithium carbonate plant in China and one of the most highly sophisticated plants of its kind in the world.



Jiangsu's state-of-the-art control room

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#### About Galaxy (ASX: GXY)

Galaxy Resources Ltd ("Galaxy") is an Australian-based global lithium company with lithium production facilities, hard rock mines and brine assets in Australia, China, Canada and Argentina. The Company is an integrated lithium mining, chemicals and battery company listed on the Australian Securities Exchange (Code: GXY) and is a member of the S&P/ASX 300 Index.

Galaxy wholly owns the Mt Cattlin project near Ravensthorpe in Western Australia where it mines lithium pegmatite ore and processes it on site to produce a spodumene concentrate and tantalum by-product. At full capacity, Galaxy will process 137,000 tpa of spodumene concentrate which will feed the Company's wholly-owned Jiangsu Lithium Carbonate Plant in China's Jiangsu province. The Jiangsu Plant has commenced production and will produce 17,000 tpa of battery grade lithium carbonate, the largest producer in the Asia Pacific region and the fourth largest in the world.

Galaxy is also advancing plans to develop the Sal de Vida (70%) lithium and potash brine project in Argentina situated in the lithium triangle (where Chile, Argentina and Bolivia meet) which is currently the source of 60% of global lithium production. Sal de Vida has excellent promise as a future low cost brine mine and lithium carbonate processing facility.

The Company completed a feasibility study for a proposed lithium-ion battery plant, to produce 620,000 battery packs per annum for the electric bike (ebike) market. The Company also owns the James Bay (100%) Lithium Pegmatite Project in Quebec, Canada.

Lithium compounds are used in the manufacture of ceramics, glass, electronics and are an essential cathode material for long life lithium-ion batteries used to power e-bikes and hybrid and electric vehicles. Galaxy is bullish about the global lithium demand outlook and is positioning itself to achieve its goal of being involved in every step of the lithium supply chain.

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